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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,938

Applicant(s)

GRUNENBERG ET AL.

Examiner

Kevin P. Kerns

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Individual Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami et al. (US 5,474,040).

Murakami et al. disclose a cast cylinder block with cylinder crankcase for an internal combustion engine (see Figures 2-4 and 6-8), in which the cylinder crankcase includes a continuous row of four cylinder barrels (bore wall structures 2) cast into the crankcase, such that the barrels 2 comprise a one-piece casting within the crankcase and at least one water jacket 15 (Figures 3, 6, and 7) that further include coolant channels (13,14) arranged through a web region (common wall portion 5) of the crankcase, such that the at least one water jacket 15 is at least partially closed via lower bridge (11,11') with respect to a side of the cylinder crankcase that faces a cylinder head, or the upper portions of Figures 3, 6, and 7 -- and as defined in Figure 2 of the application as the "cylinder head side 18" (abstract; column 1, lines 57-67; column 2, lines 1-15; column 3, lines 35-67; column 4, lines 1-31; column 5, lines 42-58; and Figure 2-4 and 6-8).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US 5,474,040) in view of Fischer et al. (US 6,354,259).

Murakami et al. disclose the features of above claims 1 and 2. Murakami et al. do not specifically disclose the use of gray cast iron and hypereutectic aluminum-silicon alloy in casting the row of cylinder barrel inserts or liners, as well as the thermally sprayed layer on the cylinder barrels.

However, Fischer et al. disclose a method of manufacturing a cylinder liner, in which the method includes providing gray cast iron and hypereutectic aluminum-silicon

alloys in die casting of cylinder liners, and having properties of wear and frictional load resistance, by thermally spraying of layers 2-5 (Figure), for the purpose of economically coating and improving the wear resistance (abstract; column 1, lines 33-48; column 2, lines 8-14 and 19-67; column 3, line 1 through column 4, line 8; and Figure).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the features of the cast cylinder block with cylinder crankcase for an internal combustion engine, as disclosed by Murakami et al., by using the gray cast iron and hypereutectic aluminum-silicon alloy along with the thermally sprayed layer on the cylinder barrels, as taught by Fischer et al., in order to obtain economical coating and to improve the wear resistance (Fischer et al.; column 1, lines 40-48; column 3, lines 58-67; and column 4, lines 1-8).

6. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US 5,474,040) in view of Baltz et al. (US 6,298,899).

Murakami et al. disclose the features of above claims 1 and 2. Murakami et al. do not specifically disclose the use of a lost core or a water jacket core in casting the row of cylinder barrel inserts or liners.

However, Baltz et al. disclose a method of making a water jacket core assembly, in which the method includes providing a lost core assembly 10 including pre-formed bridge cores 14 at web regions between the cylinder barrels or cylinder bores 16 in casting the row of cylinder barrels, for the purpose of effectively producing a double-walled cylinder insert containing a water jacket and having accurate cooling channels or

passages at the thinner web regions between the cylinder barrels (abstract; column 3, lines 15-27 and 47-67; column 4, line 1 through column 6, line 5; and Figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the features of the cast cylinder block with cylinder crankcase for an internal combustion engine, as disclosed by Murakami et al., by using the lost core or water jacket core assembly in casting the row of cylinder barrels, as taught by Baltz et al., in order to effectively produce a double-walled cylinder insert containing a water jacket with accurate cooling channels or passages at the thinner web regions between the cylinder barrels (Baltz et al.; abstract; column 5, lines 39-56; and column 6, lines 1-5).

7. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US 5,474,040) in view of Baltz et al. (US 6,298,899), and further in view of Fischer et al. (US 6,354,259).

Murakami et al. (in view of Baltz et al.) disclose and/or suggest the features of above claim 7. Neither Murakami et al. nor Baltz et al. specifically discloses the use of gray cast iron and hypereutectic aluminum-silicon alloy in casting the row of cylinder barrel inserts or liners, as well as the thermally sprayed layer on the cylinder barrels.

However, Fischer et al. disclose a method of manufacturing a cylinder liner, in which the method includes providing gray cast iron and hypereutectic aluminum-silicon alloys in die casting of cylinder liners, and having properties of wear and frictional load resistance, by thermally spraying of layers 2-5 (Figure), for the purpose of economically

coating and improving the wear resistance (abstract; column 1, lines 33-48; column 2, lines 8-14 and 19-67; column 3, line 1 through column 4, line 8; and Figure).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the features of the cast cylinder block with cylinder crankcase for an internal combustion engine, as disclosed by Murakami et al., by using the lost core or water jacket core assembly in casting the row of cylinder barrels, as taught by Baltz et al., in order to effectively produce a double-walled cylinder insert containing a water jacket with accurate cooling channels or passages at the thinner web regions between the cylinder barrels, and by further using the gray cast iron and hypereutectic aluminum-silicon alloy along with the thermally sprayed layer on the cylinder barrels, as taught by Fischer et al., in order to obtain economical coating and to improve the wear resistance (Fischer et al.; column 1, lines 40-48; column 3, lines 58-67; and column 4, lines 1-8).

Response to Arguments

8. The examiner acknowledges the applicants' amendment received by the USPTO on December 9, 2008. The amendments overcome the prior objections to the abstract and claim 7. Claims 1-12 remain under consideration in the application.

9. Applicants' arguments filed December 9, 2008 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 6-11 of the amendment, it is first noted that the new limitation "one-piece" of independent claims 1 and 7 is disclosed by Murakami et al. (see newly underlined portion of the above 35 USC 102(b) rejections section). Throughout page 6 of the remarks section, the applicants set forth the 35 USC 102(b) rejections (section 4 of the prior Office Action), followed by a discussion of their invention (with citations of various paragraphs in their specification) throughout page 7 and the top of page 8, prior to their arguments throughout pages 8-11 of the remarks section.

In addressing the 35 USC 102(b) rejections in view of Murakami et al. (as presented throughout the remainder of page 8 of the remarks section), it is noted that the applicants underline (emphasize) the phrases cylinder block and one material. However, upon review of the applicants' Figure 1 in comparison to Figure 2 of Murakami et al., it is noted that these cylinder blocks (which would both include respective crankcases therein) are very similar structurally, with the underlined one material not being presented in the applicants' claims. Furthermore, the new limitation "one-piece" is met since Figure 1 of the application and Figure 2 of Murakami et al. both disclose a continuous "one piece" row. In addition, the applicants underline the "cylinder liner" in the 2nd full paragraph on page 8, and the term "liner" is nowhere present in claims 1 and 2 (although in comparing Figure 1 of the application to Figure 2 of Murakami et al., a cylinder liner is present in both drawings despite no detailed description of its method of manufacture in Murakami et al.). Although the casting method is not set forth by Murakami et al. (i.e. Murakami et al. is not used as a 35 USC 102(b) reference to reject

the method claims 7-12), the structural features of the cylinder block with crankcase (of claims 1 and 2) are disclosed by Murakami et al., inclusive of the water jacket 15 being at least partially closed (via lower bridge 11,11' of Figures 2-4 and 6) with respect to a side of the crankcase facing a cylinder head. Finally, the applicants' statement (at the bottom of page 8 of the remarks) that the "cooling passage" has "no direct opening to the upper surface" is acknowledged, but this is another feature that is not claimed.

In addressing the 35 USC 103(a) rejections of Murakami et al. in view of Fischer et al., the applicants argue (in the last full paragraph on page 9 of the remarks section) that Fischer et al. teach "single barrels", followed by a discussion (in the paragraph bridging pages 9 and 10) of the advantages of the applicants' invention, rather than the alleged lack of teaching of claims 3-6 by the combination of references. However, the fact that Fischer et al. teach "single barrels" is irrelevant in view of the teachings of Fischer et al., namely the use of gray cast iron and hypereutectic aluminum-silicon alloys in die casting of cylinder liners, and having properties of wear and frictional load resistance, by thermally spraying of layers 2-5 (Figure), for the purpose of economically coating and improving the wear resistance (see above section 5 of the 35 USC 103(a) rejections for details). As discussed in the above 35 USC 102(b) rejections, Murakami et al. disclose all features of claims 1 and 2, but not the features of claims 3-6. As a result, the applicants are generally attacking the references individually, rather than what one of ordinary skill in the art would have recognized to be obvious based on the combination of the teachings of these references. In response to applicants' arguments against the references individually, one cannot show nonobviousness by attacking

references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In addressing the 35 USC 103(a) rejections of Murakami et al. in view of Baltz et al., the applicants argue (in the last three paragraphs on page 10 of the remarks section) that Baltz et al. lack various features that are either not claimed by applicants (e.g. "one piece liner with integral cooling passages") and/or already disclosed by Murakami et al. (e.g. the remainder of the 3rd paragraph from the bottom of page 10 of the remarks section). Although the applicants state that Baltz et al. employ separate "outer core" and "bridge core" pieces, as well as "vents 18" that are used as "accurate dimensional locators" to properly position core 10 (last two paragraphs on page 10), none of these features are being claimed. Moreover, the combination does not rely upon any of these features discussed by the applicants, as the series of bridge cores 14 at web regions of the water jacket are used in a casting process taught by Baltz et al. In view of the structural features of the cast cylinder block with cylinder crankcase disclosed by Murakami et al., one of ordinary skill in the art would have found it to be obvious to use the lost core or water jacket core assembly in casting the row of cylinder barrels, in order to effectively produce a double-walled cylinder insert containing a water jacket with accurate cooling channels or passages at the thinner web regions between the cylinder barrels (see above section 6 of the 35 USC 103(a) rejections for details). In response to applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In addressing the 35 USC 103(a) rejections of Murakami et al. in view of Baltz et al., and further in view of Fischer et al., the applicants do not provide arguments on page 11 of the remarks section, but only state that "these dependent claims are patentable by virtue of their dependency from allowable base claims". However, these dependent claims 8-11 remain rejected per above section 7 of the 35 USC 103(a) rejections section).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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January 27, 2009